Kentucky Environmental Quality Commission Public Meeting

Mercury in Kentucky

Meeting Minutes
May 17, 2004
Capitol Annex Room 131
Frankfort, Kentucky

EQC Commissioners Present
Lindell Ormsbee, Chair
Gary Revlett
Betsy Bennett, Vice Chair
Patty Wallace
Commissioners not attending
Aloma Dew
Gordon Garner

Speakers/Representatives Present
Lona Brewer, Division of Air
Tom VanArdsdall, Division of Water
Guy Delius and Mike Auslander, Dept. for Public Health
Susan Bush, Commissioner Natural Resources
Tony Hatton and Leslie King, Div. Waste Management
Sean Alteri, Division of Air

EQC Staff Present
Leslie Cole, Exe. Director
Erik Siegel, Assistant Director
Frances Kirchhoff, Executive Secretary

Audience Attendance
Approximately 40 people

Opening Remarks
Lindell Ormsbee, Chair of the Environmental Quality Commission, opened the meeting at 1 p.m. The purpose of the meeting was to be briefed on mercury in Kentucky. Mr. Ormsbee said that mercury is deposited in our aquatic environment. The largest source of mercury emissions in Kentucky is from power plants. Mercury is easily bioaccumulated in fish in a very toxic form know as methylmercury. Humans become exposed to mercury by eating contaminated fish. The National Research Council issued a report estimating that as many as 60,000 newborns a year in the United States are now at risk for adverse neurodevelopmental effects from dietary mercury.

Overview of Mercury Emissions
The first speakers introduced by the Chair were Dianna Andrews and Lona Brewer with the Kentucky Division of Air Quality. Ms. Brewer gave an overview of mercury emissions and regulatory status.

Ms. Brewer said that mercury is a toxic pollutant that accumulates in the food chain. Concentrations of mercury in the air are usually low and of little direct concern. However, atmospheric mercury falls to Earth through rain or snow and enters lakes, rivers, and estuaries. Once there, it can transform and accumulate in fish and animal tissues.

Global Mercury Emissions
EPA has concluded that Americans are exposed to mercury primarily by eating contaminated fish. Because many types of fish are caught and sold globally and mercury can be transported thousands of miles in the atmosphere, effective control of exposure will require reductions in global emissions.

Recent estimates, which are highly uncertain, of annual total global mercury emissions from all sources (natural and anthropogenic) are about 5,000 to 5,500 tons per year. U.S. emissions are estimated to account for roughly 3% of the global total, and the U.S. power sector estimated to account for about 1% of the total global emissions.

Sources of Mercury Emissions

EPA states that the U.S. has reduced its anthropogenic mercury emissions by greater than 40% since 1990. Using emission factors to estimate mercury releases, preliminary analyses indicate that anthropogenic emissions of mercury are approximately 263 tons per year in the United States. Of that amount, combustion sources account for about 85% of that amount which are made up of the following:

- Municipal and medical waste incineration - 25%
- Utility boilers - 21%
- Commercial/industrial boilers - 12%.

Other sources include chlor-alkali production, smelting operations, secondary mercury production, equipment manufacture and other processes.

Mercury Studies and Regulatory Status

The 1990 Clean Air Act Amendments required EPA to complete two studies related to mercury and report their findings to Congress. The 1st study focused on the health and environmental impacts of mercury. The 2nd focused on hazardous air emissions, including mercury, from utilities

In 1994 – in a pair of legal settlements, EPA agreed to revised deadlines to complete the studies. EPA issued the Mercury Study in December 1997. EPA issued the "Utility Report" to Congress providing the analysis of toxic air pollutants from utilities, including mercury in February 1998. In 1998, EPA agreed to

- Issue regulatory determinations on how to proceed by December 2000;
- Propose regulations by December 15, 2003; and
- Finalize regulations by December 15, 2004.

EPA is looking at basically 2 different mechanisms for controlling mercury emissions from utilities.

- Utility MACT (Maximum Achievable Control Technologies) under Section 112 of the Clean Air Act – Rule would reduce nationwide emissions of mercury by 14 tons (29%) by the end of 2007. – From 48 tons being emitted per year to 34 tons per year.
- Standards of Performance to limit mercury emissions from new and existing utilities under Section 111 of the Clean Air Act – would create a market-based "cap-and-trade" program that, if implemented, would reduce nationwide utility emissions of mercury in two distinct phases.

On January 30, 2004, EPA proposed MACT requirements and requested comment changes to Section 111 on an alternative mercury cap-and-trade program (under CAA Section 112(n)). This would be a federally run program with requirements being similar to those also outlined in the Section 111 program.

Highlights of the Cap and Trade and the MACT Proposals

Section 111 (or Section 112) – Cap and trade program. On February 24, 2004 the U.S. EPA supplemented its December 15, 2003 proposal and proposed a rule to permanently cap and reduce mercury emissions from power plants. The rule is closely related to the "Interstate Air Quality Rule" – part of a multi-pollutant approach to further reduce emissions of SO2 and NOx. The EPA believes reducing these three pollutants together will protect public health and the environment without interfering with the steady flow of affordable energy for consumers and business.

In the first phase, due by 2010, emissions would be reduced by taking advantage of "co-benefit" controls – that is mercury reductions achieved by reducing SO2, and NOx under the Interstate Air Quality Rule. When fully implemented, mercury emissions will be reduced by 33 tons (69%) by 2018. Mercury emissions would be capped at 15 tons. This rule would be implemented much like the acid rain program & NOx SIP Call.

MACT proposal under Section 112 of the 1990 CAAA. In December 2000, EPA announced that it would regulate emissions of mercury and other air toxins from coal and oil fired electric utilities under Section 112 of the Act. This announcement did not specify how and what levels of control would be required.

Under MACT provisions, sources are commonly given 3 years to comply with emission reduction requirements. The rule would reduce nationwide emissions of mercury by 14 tons (29%) by the end of 2007. – From 48 tons being emitted per year to 34 tons per year. EPA believes that there are no adequately demonstrated control technologies specifically designed to reduce mercury emissions from coal-fired utilities.

Final Status

On May 5, 2004, EPA reopened the comment period for the January 30, 2004 proposal including the proposed National Emissions Standards for Hazardous Air Pollutants; and in the alternative, proposed standards of performance for new and existing stationary sources: Electric Utility Steam Generating Units, and on the March 16, 2004 Supplemental proposed utility mercury reductions rule. Comments are now due by June 29, 2004.

Questions and Answers

Q. Are you reporting what is going on at the federal level or is the cabinet looking at adopting just the federal government requirements like they did with the new source review?
A. We are going to wait and see what EPA is going to do. EPA extended the comment period. There is a lot of information out there for them to look at and states to look at also.

Q. Do you think EPA is going to finalize this any time soon?
A. No.

Q. What about the new technology for mercury removal?
A. What I have heard is still in the proposed stages and EPA has not fully signed-off on new technologies at this time.

Q. Has the state made any comments on the proposed rules?
A. No. Not at this time.

Q. Do they plan to?
A. I believe the cabinet may be working on some, but I am not sure.

Q. Can EQC be kept updated on that and get copies of those?
A. Certainly.

Comment. An audience member expressed his concern that the state is moving too fast to adopt such rules. It was just stated here that EPA has not signed-off on new technologies, however, in 2001 in a presentation made before Edison Institute they said "up to 90% reduction of mercury is possible with existing technologies close on the horizon" so it is a puzzle to us when people state the EPA has not signed-off on these technologies. Kentucky, because of the number of power plants, could become a mercury hot spot. We don't want Kentucky to be sacrificed for the rest of the nation. We would like the state to do all it can to prevent that from happening.

Q. I know that the entire state is under a fish consumption advisory for mercury. And to get the data for those advisories the fish are tested. Some states have worked to get rainwater analysis for mercury. Are there any plans in Kentucky to do any sort of rainwater analysis for mercury?
A. No response.

Comment. A member of the audience noted that scrubbers are very good at removing mercury from bituminous coal (Kentucky coal). She noted that the Selective catalytic reduction technologies that LG&E is putting on before the scrubbers are very good at oxidizing the mercury into a particulate form that can be removed by the precipitators and dust removal equipment. It is very good combination to have a SCR, a precipitator, and a wet scrubber in use to help remove mercury from bituminous coal.

Ms. Cole noted that the US EPA Toxic Release Inventory data shows that Kentucky is fifth in the nation for total on and off site releases of mercury and mercury compounds in 2001.

Mercury in Water and Fish Consumption Advisories
The next speakers were Tom VanArsdall and Erik Eisminger with the Kentucky Division of Water (KDOW).

Fish Tissue Mercury Data Collection and Results
Mr. VanArsdall reported on mercury fish testing in Kentucky. He said that the fish tissue data had been collected from 1995 to 2002 from composted fillet samples representing 29 species. Mercury data from 157 samples taken in 27 lakes and 126 samples collected from 55 sites on 48 streams and rivers are presented. Data were viewed from a regional perspective and were grouped by physiographic region in the following chart.

Region	Fish Tissue (streams) ppm	Fish Tissue (lakes) ppm	Water Quality nanograms/L
Statewide	0.183	0.186	2.9
Bluegrass	0.163	0.188	2.6
Eastern Coalfields	0.107	0.144	2.8
Jackson Purchase	0.286	0.178	4.0
Pennyroyal	0.222	0.202	3.2
Western Coalfields	0.102	No data	4.0

A map was also provided to show the statistical distribution of fish tissue mercury data from streams and rivers. The draft EPA criterion for use-support designations is 0.30 ppm. Overall, the Jackson Purchase had significantly higher levels than other regions (Analysis of Variance, Tukey's multiple comparison test, $p<0.05$).

The statistical distribution of fish tissue data by physiographic region (no data exist for the Western Coalfield region) was also provided. Fish tissue concentrations from lakes were fairly similar to streams and rivers; however, no statistical differences were detected between regions ($p<0.05$). Within individual lakes, 13 out of 27 (48%) had values above the EPA criterion (0.30 ppm). Ten of these 13 sites are listed as impaired for fish consumption in the draft 2004 303 (d) list.

While KDOW does not have enough data to make species-specific determinations for fishes containing high mercury, the data suggest that larger, carnivorous sport fish have higher concentrations. This is logical since mercury is a bioaccumulative metal, and larger fishes higher up on the food chain will have higher concentrations than those lower on the food chain.

Mercury and Water Quality

Over 1000 water quality samples collected in 2003 and 2004 from 105 stream and river stations were analyzed for mercury concentrations. Data were viewed from a regional perspective, and were grouped by physiographic region (i.e., Bluegrass, Eastern Coalfields, Pennyroyal, Jackson Purchase, and Western Coalfields). A map was presented to show the statistical distribution of mercury concentrations by physiographic region. No significant differences were detected among regions. Also, no values exceeded the water quality standard for mercury (51 nanograms).

Questions and Answers

Q. What is the possibility in Kentucky for testing rainwater?
A. I think it should be done.
A. Some is being done through the Division of Air acid rain testing program.

Q. It is thought that mercury mostly comes from power plants, but I noticed that some lakes in a region are much higher than other lakes in that same region. If the source is air pollution then it seems like it would be consistent in regions. Maybe it isn't power plants causing the mercury in lakes?
A. No we are not sure why that is. It may be due to the features of the lake itself and how it responds.

Q. Does the Division of Water let the people that fish these lakes know that the fish tissue mercury levels are elevated?
A. No. Fish and Wildlife has tried to post signs, however, the signs are vandalized and just don't stay put. In the booklet with the fishing license information is provided about the risks. The Division of Water is working on a pamphlet to get information out to pediatrician's offices.

Q. Concerning the effects of mercury along with other chemicals, in 2001 the cabinet formally known as NREPC wrote a document stating that—for example in Muhlenberg County in Western Kentucky— already exceeds arsenic, barium and total chromium in terms of risk-based values. So what happens in a place like this when you add total mercury? I think that would be important for Kentucky to address.
A. No response.

Q. Some states have standards that go beyond federal standards. Why not Kentucky?
A. Kentucky has a hard time doing anything more stringent that EPA.

Q.The Cabinet, having done the analysis, said that 0.12 parts per million is at a level to restrict fish consumption. Yet the TMDL level is 0.3. Why wouldn't the TMDL level be 0.1?
A. Fish tissue advisory does not necessarily equate to a violation of water quality standards. That is why we use the EPA recommended criteria of 0.3 in fish tissue. The fish consumption advisory is not in the Water Quality Standards regulations. That is why the Division of Water uses EPA's recommended criteria for water (expressed as a fish tissue number).

Q. What are the standards for Kentucky's surrounding states?
A. Most have gone to a risk-based approach.

Q. It states in the report that there are no species-specific determinations at this point, is there work being done to do that? When the risk communication piece is put together will it include any kind of breakdowns of what these larger, sport fish are?
A. Other states have tried to be species-specific but it was hard for the common fisher person to understand and keep up with each species and contaminates. We are trying to make a more understandable advisory by trying to lump the fish species together into predicator fish, game fish, etc. to make it easier for the public to understand.

Mecury and Public Health
The final speakers were Mr. Guy Delius and Dr. Mike Auslander with the Department of Environmental and Public Health. Dr. Auslander noted that fish as a dietary food is good for the health of Americans, however there is a great concern for the levels of mercury in certain fish such as shark, king macheral and tilefish should not be consumed by certain individuals—women of childbearing age. The Department works with the Div. of Water to issue fish consumption advisories based on FDA levels.

Dr. Auslander commented that the Department for Public Health has not seen reports of any mercury poisioning or mercury problems in Kentucky and nationally. He said the public health reports on mercury toxicity all are associated with native cosmetics and medicinals for immigrant populations.

Questions and Answers

Q. Does your agency track autism in Kentucky?
A. We have no way of knowing that autism is associated with mercury.

Q. What about in dental fillings?
A. No, there is no connection between mercury and health. It is a tried and true methodology.

Q. Are you contacted about mercury as public health concern especially in light of the new EPA/FDA advisory on fish consumption limits for certain species of fish with elevated mercury levels.
A. No.
A. Audience member. I know that local health departments have received numerous calls.

Q. What about mercury in schools?
A. When we are contacted by a school we emphasis heighten awareness about mercury in schools.

Q. You don't collect or encourage schools to get rid of mercury thermometers?
A. Those are individual school problems.

Q. Is it your role or the Division of Water to inform the consumers about the fish consumption?
A. Three agencies in Kentucky inform the public--Fish and Wildlife, Cabinet for Public Health and Division of Water. Public Health is the lead agency.

Q. How do you explain how mercury or PCBs leave the (tissue of fish) system and how were they lowered?
A. Fish and Wildlife official in the audience answered that they do not know how it leaves the system so quickly.

Final Discussion
Mr. Ormsbee thanked the speakers for their comments. He stated that EQC would review this information and consider recommendations at a future date.

Regulatory Review

Noncoal Regulations
Mr. Ormsbee next introduced Ms. Susan Bush, Commissioner of the Department of Natural Resources. With Ms. Bush was Jim Villines with the Division of Surface Mining to review a regulation concerning noncoal regulations:
401 KAR 5:002, Definitions for 405 KAR Chapter 5
401 KAR 5:032, Permit requirements
401 KAR 5:036, Signs and markers
401 KAR 5:042, Blasting
401 KAR 5:048, Protection of environmental resources
401 KAR 5:062, Handling materials
401 KAR 5:078, Contemporaneous reclamation
401 KAR 5:082. Reclamation bond

Recommendations
Betsy Bennett voted to recommend adoption of the Kentucky Division of Surface Mining proposed regulations contingent upon the following:

- The Environmental and Public Protection Cabinet convene a workgroup of regulatory, industry, citizen and university officials to strengthen the noncoal regulations in the areas of reclamation, enforcement, bonding and replacement of affected water supply that is protective of the environment, public health and provides for the continued development of the noncoal economic sector.

Gary Revlett seconded the motion. The motion passed unanimously with all present voting.

Solid Waste Trust Fund and Management Plans
The Chair introduced the final speaker for the day, Tony Hatton with the Division of Waste Management. With Mr. Hatton was Leslie King to talk about proposed waste regulations:
401 KAR 49:011 General provisions relating to area solid waste management plans
401 KAR 49:080 solid waste grant funds and solid waste collector and recycler registration

Question and Answer
Q. Recycle information is hard to get for EQC's State of Kentucky's Environment report. Will this regulation make the information more readily available?
A. It should.

Q. There is no place in Kenton County to go and take recyclable materials. How can we change that? Is that a county or state problem? Can the same people that collect the trash just have a different can for collecting recycled materials?
A. Recycling is a marketing problem pushed by supply and demand.

Recommendations
It was moved by Betsy Bennett and seconded by Gary Revlett to approve these regulations. The motion passed unanimously with all present voting.

New Source Review
The next speakers were Katherine Ashcraft and Sean Alteri with the Kentucky Division of Air to review proposed air regulations:
401 KAR 51:017 Prevention of significant deterioration of air quality
401 KAR 51:052 Review of new sources in or impacting upon non-attainment areas.

Recommendations
It was moved by Gary Revlett to approve these regulations contingent upon:

- Kentucky Division of Air Quality strengthen its public participation and outreach efforts to better notify the public of PSD, NSR, PALs and other permit applications and public notices to provide greater opportunities for public input (posting of public notices on Web site, e-mail and mail notification of interested parties).
- The Kentucky Division of Air Quality strengthen its public participation and outreach efforts concerning future proposed rule changes to include offering workshop or informational meetings to citizen groups on proposed regulations and amendments to facilitate understanding and more informed input.
- The Kentucky Division of Air Quality closely monitor the current legal challenges to federal regulations pending before the US court of appeals, District of Columbia circuit which provide basis for 401 KAR 51:0001, 51:017 and 51:052.
- The Kentucky Division of Air Quality monitor the impacts of the 405 KAR 51:0001, 51:017 and 51:052.
- The Kentucky Division of Air Quality not move forward with the adoption of the U.S. EPA's New Source Review rules issued August 27, 2003.

Patty Wallace seconded the motion. The motion passed with Betsy Bennett abstaining from the vote.

Other Business
Attention was directed to the EQC 2004 priorities and meeting schedule. Plans were tentatively made for the remainder of EQC meetings for the year 2004.

Ms. Cole noted that July 22 is the tentative date to release EQC's report on environmental health and hold a forum on environmentally healthy schools with a follow-up on mercury recommendations. September 23 and 24 has been set for forestry forum at Eastern Kentucky University.

Ms. Cole reported that the U.S. EPA has agreed to fund the printing of the EQC Children's Environmental Health report. EQC staff will be working through Kim Henkin with the UK Extension office to get this published.

The budget report shows that 75% of the fiscal year has expired and 74% of our budget has been used. Briefly discussed was the use of procards for purchases/

The commissioners were given news clippings of all the Cabinet's Earth Day activities. These activities were coordinated by EQC staff.

With no further business, the meeting adjourned at 4:30 p.m.

Signed Lindell Ormsbee, Chair

Date